DEPARTMENT OF THE ARMY
U.S. ARMY ABERDEEN PROVING GROUND
ABERDEEN PROVING GROUND, M ARYLAND 21005-5001

REPLY TO
ATTENTION OF

9 MAR 2008

IMNE-APG-DIC

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Aberdeen Proving Ground Lead Management Plan

1. Lead-based paint presents a potential hazard to humans in general and children in particular, and its proper management is mandated by Federal, State and Army regulations. Army Regulation 420-70 requires development of a Lead Hazard Management Plan. The enclosed Aberdeen Proving Ground (APG) Lead Hazard Management Plan is prepared to comply with all applicable laws and regulations. The intent of the Plan is to prevent lead hazards, and must be implemented whenever repair, construction, renovation, or demolition activities impact lead-containing materials such as paint.

2. The Plan is implemented by a team of professionals representing appropriate organizations at APG. The Plan describes the lead hazard management program, the team responsibilities, and training and record-keeping requirements.

3. The Plan applies to all civilian, military, and contractor personnel who are involved in such activities. The US Army Garrison Aberdeen Proving Ground, and tenant commanders and directors will ensure their staff fully comply with the requirements of the Plan. Appendix B of the Plan contains specific definitions that must be read and understood to ensure proper interpretation of the Plan and compliance obligations.

4. Point of contact for this matter is Dr. Hazoor Khan, 410-306-2278.

FOR THE COMMANDER:

John T. Wright

Encl

JOHN T. WRIGHT
Colonel, OD
Deputy Installation Commander

DISTRIBUTION:
B2

LEAD HAZARD MANAGEMENT PLAN

Prepared by:

Directorate of Safety, Health and Environment

US Army Garrison, Aberdeen Proving Ground

January 2006

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Appendices

1. INTRODUCTION

a. The Department of the Army Regulation AR 420-70 delineates policy for the management of lead based paint (LBP) hazards at Army installations to prevent lead exposure to children under the age of six years, pregnant women, and workers. Lead hazard management includes identification of lead hazards in child-occupied facilities by performance of risk assessments, interim control or elimination through abatement, and on-going monitoring of painted surfaces known or suspected to contain lead. Aberdeen Proving Ground (APG) is required by AR 420-70 to develop a Lead Hazard Management Plan (LHMP).

b. The APG LHMP was developed to comply with all applicable laws and regulations with specific provisions for: identification and risk assessment of each location containing lead-based paint; the implementation of operations and maintenance (O&M) procedures; the identification of training requirements for affected personnel; the conduct of training for affected personnel; and the review of repair, construction, renovation, and demolition activities which may impact lead-based paint. The applicability is discussed further in Section 2, and the relevant regulations are discussed in Appendix A.

c. The principal objective of a Lead Management Program is to minimize exposure of all building occupants and contractors working in the building to lead and lead dust. This Program provides for maintenance and inspection procedures involving residential buildings and other structures in general, with specific provisions for military housing units, child care facilities, and for construction, renovation or demolition activities. If it can be effectively managed in place, not all lead based paint requires abatement.

d. The Lead Hazard Management Program establishes procedures to manage and control lead hazards that follow applicable Federal, State, and Army regulations. It assumes that painted surfaces in or on facilities constructed prior to 1978 contain LBP unless documented testing or historical data indicate that only non-LBP was used. No building should be assumed as lead free. The Maryland Department of the Environment (MDE) defines lead containing materials as any material that contains greater than 0.5 percent lead by weight or greater then 0.7 milligrams per square centimeter (mg/cm^2) by X-ray fluorescence (XRF). Further, the Lead Hazard Management Program ensures that contracts for projects involving the removal and disposal of lead-contaminated material at APG are reviewed and approved by DSHE and comply with The Occupational Safety and Health Administration (OSHA) Lead in Construction Standard and RCRA hazardous waste requirements. The OSHA regulations mandate that any detectable levels of inorganic lead trigger compliance requirements. Lead presence may be determined through chemical testing, paint chip laboratory analysis, or X-ray Fluorescence. If lead is not detected through any of these methods, the project can proceed without any special protective measures for lead. If lead is detected, an assessment of the potential worker exposure must be made. To insure consistency of implementation throughout facilities controlled by APG, all applicable organizations must adopt the policies and procedures contained in the plan.

e. Policy and Organization: To ensure success, there must be a formal decision at the topmost level of facility management to adopt the LHMP as a matter of policy. This gives the program

legitimacy within the organization and insures that the Lead Hazard Program Manager will be given adequate authority to implement the program. A specific administrative position must be given the responsibility for the LHMP. It is best if this position already has the authority necessary to implement the program. This position must have effective control over activities that could impact on the lead containing materials in the facility. At a minimum, this position needs to have control over internal maintenance and cleaning personnel, outside maintenance contractors and renovation projects. The organizational responsibilities for the APG LHMP are described in Section 3.

f. Implementation of the LHMP is the responsibility of representatives from appropriate organizations at APG. A description of the composition and responsibilities of these representatives is located in Section 3.

g. Section 2 of this document describes the applicability of the LHMP. Section 4 describes surveys and risk assessments, while O&M activities are addressed in Section 5, use of contractors in Section 6, waste handling in Section 7, training requirements in section 8, and recordkeeping in section 9.

2. APPLICABILITY

a. The objectives of this guidance are the protection of occupants and workers at work sites from lead exposure, and the characterization, handling, and disposal of debris/waste contaminated with lead-based paint. The guidance is applicable to the following types of lead-based paint contaminated projects:

(1) Abatement projects. In the Code of Maryland Regulation (COMAR), lead abatement is defined as, "... a set of measures designed to eliminate or reduce lead-based paint hazards in residential, public, or commercial buildings, bridges, or other structures or superstructures..." through the removal or encapsulation of lead-containing substances, by thorough cleanup procedures, and post-cleanup treatment of surfaces. Under certain conditions and in certain types of buildings, State and Federal regulations require the abatement of lead. For example, loose lead paint flakes in family housing units, childcare facilities, and schools potentially pose a health hazard to the occupants. Lead abatement is required in such conditions.

(2) Risk reduction projects. The Code of Maryland Regulations (COMAR 26.16.02.04) provides for the certification of "lead-safe housing" following an inspection. Risk reduction projects are not intended to eliminate the lead-based paint hazards, but to reduce the risk of lead-based paint exposure for a period of two (2) years. These projects typically include the replacement of windows or the treatment of the friction surfaces so that they are lead-free and projects intended to comply with the risk reduction standard as specified in Environment Article, §6-815, Annotated Code of Maryland.

(3) Demolition projects. A large number of old buildings and structures contain lead-based paint. Debris/waste generated from demolition of such buildings and structures require special handling and disposal.

(4) Renovation/maintenance projects. Renovation/maintenance projects involve the removal/modification of buildings or their components that may contain lead-based paint. Examples include removal or modification of windows, doors, walls, ceilings, etc.

b. The LHMP is applicable to and will be implemented during projects involving lead abatement, lead risk reduction, buildings renovation, maintenance and demolition activities that may impact lead-containing materials such as paints. Representatives of relevant organizations will review facility lead-based paint inspection records, or oversee new inspections to determine the quantity and nature of lead-containing materials involved and decide on the best method of managing the lead.

c. Lead hazard reduction will be performed whenever lead-containing materials are impacted by repair, construction, renovation, or demolition activities. Representatives of relevant organizations will ensure that lead hazard reduction projects are conducted in accordance with APG's LHMP as well as applicable Federal, State and Army regulations and regulatory guidelines. The various responsibilities pertaining to the oversight and management of abatements are described in Section 3.

d. Recordkeeping: Questions can arise about regulatory compliance or program effectiveness. This can result from a visit from OSHA, EPA, MDE or questions from facility personnel. It is useful if the administration of the program is set up so that it generates documentation to respond to these questions. A documentation system does not need to be elaborate. It simply needs to keep the work orders/permits, exposure monitoring and XRF results in a common location. Documentation will be needed for the following –

(1) Program Operation: The activities of the program shall be documented. These include documentation of the use of work practices, personnel, areas and systems involved.

(2) Material Inventory: Prior to the beginning of the program, an inspection is conducted; resulting in an inventory of suspect materials, which have been identified as lead containing and those that are presumed to be lead containing under circumstances where they could not be sampled. The MDE defines lead containing materials as any material that contains greater than 0.5 percent lead by weight or greater then 0.7 milligrams per square centimeter (mg/cm^2) by XRF. OSHA regulations mandate that any detectable levels of inorganic lead trigger compliance requirements. During the course of the Program, a great deal of detail concerning the location and condition of these materials will be generated as work is performed. As LBP or other lead containing materials are removed the inventory shall be updated. Drawing of locations of LBP must be updated periodically and at the completion of each lead abatement activity to track LBP and other lead containing materials as they are removed from the building.

(3) Regulatory Compliance –

(a) Aberdeen Proving Ground must comply with OSHA, EPA, and MDE lead regulations. The documentation must be adequate to demonstrate compliance with all applicable regulations. The OSHA specifically requires maintenance of the following records: Objective data, if relied

on; exposure measurements; medical surveillance; training records; and required notifications. Since February 24, 1996, the Maryland Reduction of Lead Risk in Housing Act requires that all pre-1950 residential rental properties ("Affected Properties") be certified in compliance with the full risk reduction standard prior to each change in occupancy. By February 24, 2006, regardless of whether there has ever been a change in occupancy in an Affected Property, all Affected Properties must be certified in compliance with a lead risk reduction or lead free standard. Property owners may enter into a Settlement Agreement and Consent Order ("Consent Order") with the Department of the Environment in the event of not being able to meet the February 24, 2006 deadline. The Consent Order will require that all Affected Properties owned by the Owner be brought into current compliance with Maryland's lead laws.

(b) The documentation is used to evaluate and improve the Program. To be effective, the system of documentation shall grow out of existing procedures. For example in a facility that uses a paper work-order system, if different colored work-orders are used for LHMP work, it is possible to tell at a glance if LHMP procedures were applied to all work on lead containing materials.

(c) It is incumbent upon the appropriate organizational representatives to become familiar with the requirements of current lead regulations, so the facility will be assured of maintaining regulatory compliance. While the current set of circumstances within this facility may mean that many portions of the regulations are not applicable, changes in operation or deviation from prescribed LHMP procedures may create situations where these standards will, in fact, apply.

3. RESPONSIBILITIES

3-1. Overview

a. Individuals with responsibilities under this LHMP include a Directorate of Installation Operations Construction Division representative, one Environmental Support Specialist from the Environmental Compliance Division, one Safety Specialist from Installation Safety Division, and one Industrial Hygienist from Kirk US Army Health Clinic. These individuals will be responsible for management of LBP and abatement projects in accordance with the LHMP.

Organization	Contact Number
DIO Construction Division	4-1161
DIO Housing Division	4-2010
DSHE Environmental Compliance Division	4-2260
DSHE Installation Safety Division	4-1100
Kirk U.S. Army Health Clinic	3-1846, 3-1839

b. The representatives listed below will be responsible for satisfying their organizational requirements for management of lead hazards. They will coordinate the actions with other organizational representatives as needed.

c. The organizational responsibilities include the following –

3-2. DIO - Construction Division

a. General Responsibilities –

(1) Develop scope of work, seek funding, prioritize work, and accomplish the work.

(2) Comply with the LHMP requirements.

(3) Coordinate activities with others as needed.

b. Material Inventory –

(1) Review current inventory, update deficiencies, perform additional surveys and sampling as funding is available.

(2) Maintain the installation wide lead inventory.

(3) Update the inventory as additional sampling is performed or LBP are removed.

(4) Ensure risk assessments are performed on damaged or peeled LBP. Design and oversee corrective procedures for immediate exposure hazards.

c. Project Supervision –

(1) Provide technical supervision for all contracted and in-house lead abatements.

(2) Coordinate with Garrison and Tenant organizations to delineate which areas of building components will be impacted by maintenance, construction, or renovation where LBP disturbance is involved.

(3) Quantify locations of LBP to be abated.

(4) Perform work practice and compliance inspections on all abatements.

(5) Review Federal, State and Army regulations and guidelines applicable to the project; these are summarized in Appendix A.

d. Recordkeeping –

(1) Review and maintain abatement records as applicable to ensure regulatory compliance and maintain lead hazard inventory to include project monitoring, logs of work activities, ,daily progress, and air monitoring records. In-house project records are to be reviewed by the Project Manager and will be maintained within their control.

(2) Maintain all contractor submitted documentation for contracted abatements.

(3) Maintain written copies of evaluations of contractor submitted documentation for contracted abatements.

(4) Maintain and ensure training records, air monitoring records, and fit test records for all Government Lead hazard workers.

(5) Ensure storage in accordance with applicable regulatory requirements all records pertaining to lead hazard abatement, including work progress logs, air monitoring records, and waste manifests.

e. For contract work –

(1) Prepare Scopes of Work, government cost estimates for all lead hazard projects.

(2) Serve as COR/TCOR for the projects.

(3) Prepare contract documentation and award contract.

(4) Evaluate contractor submittals and ensure the contractor submittals contain –

(a) Project phasing and timetable.

(b) Emergency Response Plan.

(c) Respiratory Protection Program.

(d) Medical respirator authorization.

(e) Respirator Fit Test records.

(f) Training documentation.

(g) Licensing.

(h) Proof of Insurance.

(i) Regulatory notifications.

(j) Qualifications and training of a project monitor / industrial hygienist.

f. Notifications –

(1) Make regulatory notifications as required for in-house abatements.

(2) Ensure building occupant notifications are made.

g. Training for Supervisor, Designer, Inspector and Planner –

(1) Maintain certification as a State of Maryland Lead Paint Supervisor and Project Designer.

(2) Maintain certification as a State of Maryland Lead Paint Inspector and Management Planner.

(3) Ensure maintenance/housekeeping personnel are properly trained.

3-3. DIO – Housing Division

a. General Responsibilities –

(1) Prioritize work and conduct surveys for family housing units, as outlined in Chapter 5.

(2) Comply with the LHMP requirements applicable to family housing units at APG.

(3) Coordinate activities with other organizations as needed.

b. Material Inventory –

(1) Review current inventory, update deficiencies, perform additional surveys and sampling as required to ensure compliance with the Maryland Lead Risk Reduction Act.

(2) Maintain an inventory of known locations of lead based paint for each of the APG Housing Units including copies of building surveys and/or visual inspections.

(3) Update the inventory as additional sampling is performed or LBP are removed.

(4) Ensure risk assessments are performed on damaged or peeled LBP. Provide for the design and oversee corrective procedures for immediate exposure hazards.

c. Project Supervision –

(1) Provide technical supervision for all contracted and in-house lead abatements and risk reduction treatments performed in housing units.

(2) Quantify locations of LBP to be abated and/or delineate areas to undergo risk reduction treatments.

(3) Perform work practice and compliance inspections of abatement or risk reduction activities in housing units.

(4) Review Federal, State and Army regulations and guidelines applicable to the project; these are summarized in Appendix A.

d. Recordkeeping –

(1) Review and maintain abatement records as applicable to ensure regulatory compliance and maintain lead hazard inventory to include project monitoring logs of work activities and progress as well as surface wipe sampling records following MDE requirements.

(2) Maintain all contractor submitted documentation for contracted surveys, abatements, or risk reduction treatments.

(3) Maintain written copies of evaluations of contractor submitted documentation.

(4) Maintain and ensure training records, air monitoring records, and fit test records for all Government Lead hazard workers who perform abatement or risk reduction treatments in housing units.

(5) Ensure storage in accordance with applicable regulatory requirements all records pertaining to lead hazard abatement, including work progress logs, air monitoring records, and waste manifests.

e. For contract work –

(1) Prepare Scopes of Work, government cost estimates for all lead hazard projects.

(2) Serve as Contracting Officer's Representative/Technical Contracting Officer's Representative for the project.

(3) Prepare contract documentation and award contract.

(4) Evaluate contractor submittals and ensure the contractor submittals contain –

(a) Project phasing and timetable.

(b) Emergency Response Plan.

(c) Respiratory Protection Program.

(d) Medical respirator authorization.

(e) Respirator Fit Test records.

(f) Training documentation.

(g) Licensing.

(h) Proof of Insurance.

(i) Regulatory notifications.

(j) Qualifications and training of a project monitor / industrial hygienist.

f. Notifications –

(1) Make regulatory notifications as required for in-house abatements.

(2) Ensure building occupant notifications are made.

g. Training for Supervisor, Designer, Inspector and Planner –

(1) Maintain certification as a State of Maryland Lead Paint Supervisor and Project Designer.

(2) Maintain certification as a State of Maryland Lead Paint Inspector and Management Planner.

(3) Ensure maintenance/housekeeping personnel are properly trained.

3-4. Environmental Compliance Division

Environmental Compliance Division representative will be responsible for the following –

a. Coordinate the revision of the LHMP as necessary in response to changes in regulations or regulatory policy, feedback from other responsible individuals, or findings of the compliance inspections.

b. Provide waste characterization and disposal guidance.

c. Perform inspections for compliance with environmental regulations.

3-5. Installation Safety Division

Installation Safety Division representative will be responsible for the following –

a. Perform inspections for compliance with safety regulations.

b. Fit test government abatement workers. Provide worker health and safety support when requested.

c. Respond to Community Complaints.

3-6. Kirk US Army Health Clinic

Kirk US Army Health Clinic representative will be responsible for the following –

a. Perform respirator authorization.

b. Review the contractor's data.

c. Perform medical surveillance for government employees.

3-7. Directorate of Installation Operations Contractor

The COR will coordinate with the DIO-Construction Division representative on all matters relating to performing lead hazard abatement at APG. The contractor will ensure the following –

a. Pre-award responsibilities –

(1) Submit copies of all documentation requested to the COR in a timely manner.

(2) Update or revise plans, phasing, and project timetable as necessary.

b. Post-award responsibilities / during abatement –

(1) Maintain a log of daily work progress.

(2) Provide air monitoring during all abatement work.

(3) Perform routine annual Industrial Hygiene sampling for in-house work.

(4) Allow PM or designees full access to the work area at all times.

(5) Ensure site security and limit physical access of unauthorized personnel into the abatement area.

(6) Perform abatement work in accordance with Federal, State and Army regulations and guidelines applicable to the project; current regulations are summarized in Appendix A. However, it is the contractor's responsibility to perform abatement work in accordance with the latest regulations applicable at the time the work is performed.

c. Project closeout: Provide copies of daily project logs, air monitoring records, waste manifests, and as-built or post-abatement drawings as specified in contractor documents to the COR.

4. SURVEY ACTIVITIES AND RISK ASSESSMENT

This section describes lead hazard identification approaches, methods, and procedures.

4-1. Priority Facilities

a. Priority facilities are listed in order below –

(1) Child daycare centers, annexes, playground equipment.

(2) Army licensed family daycare in Family Housing.

(3) Pediatric wards/clinics and waiting areas.

(4) Youth centers and recreational facilities.

(5) Playgrounds.

(6) Family Housing currently occupied with children ≤ 6 years of age.

(7) Family Housing occupied with a pregnant woman.

(8) Family Housing constructed before 1978.

(9) Remaining Family Housing.

b. These are areas where children frequent, and therefore pose the greatest potential hazard on the Installation. If LBP is found, these areas will be a priority for risk reduction. Risk assessments and comprehensive surveys as discussed later are only required for Family Housing and priority facilities.

c. Any other Installation facility with painted surfaces, while not posing as significant a risk, will be included in the LBP management plan. These include steel structures such as water towers, maintenance shops, historic buildings and office buildings where occupational hazards may be encountered as a result of renovation and demolition.

4-2. Survey and Risk Assessment

a. After the LHMP has been developed and responsibilities assigned, the first step in implementing it is to conduct building-by-building inspections to assess exposure concerns, starting with family housing and priority and high-priority facilities. In order to identify LBP hazards, it is necessary to understand testing procedures required in the LHMP.

b. The intent is to determine whether LBP hazards exist and, if so, to provide solutions on reducing and managing such hazards until complete abatement takes place. There are three phases of the hazard identification process –

(1) Phase 1 - Initial Survey.

(2) Phase 2 - Performance of a Lead Exposure Risk Assessment (LERA) for priority facilities.

(3) Phase 3 - Comprehensive LBP testing following the HUD guidelines.

c. Initial Survey –

(1) The initial survey is a cursory examination of Installation housing and priority facilities for obvious signs of potential LBP hazards. The survey shall include a visual inspection of the following –

(a) A representative number of units. Use Table 1 to identify the number of units to survey.

(b) All priority and high-priority facilities.

Table 1: Representative Number of Housing Units to Survey by Facility

Number of Similar Units, Similar Common Areas or Exterior Sites in a Building or Development	Pre-1960 or Unknown-Age Building or Development: Number to Test	1960-1977 Building or Development: Number to Test
1-9	All	All
10-13	All	10
14	All	11
15	All	12
16-17	All	13
18	All	14

Number of Similar Units, Similar Common Areas or Exterior Sites in a Building or Development	Pre-1960 or Unknown-Age Building or Development: Number to Test	1960-1977 Building or Development: Number to Test
19	All	15
20	All	16
21-26	20	16
27	21	17
28	22	18
29	23	18
30	23	19
31	24	19
32	25	19
33-34	26	19
35	27	19
36	28	19
37	29	19
38-39	30	20

Number of Similar Units, Similar Common Areas or Exterior Sites in a Building or Development	Pre-1960 or Unknown-Age Building or Development: Number to Test	1960-1977 Building or Development: Number to Test
40-48	31	21
49-50	31	22
51	32	22
52-53	33	22
54	34	22
55-56	35	22
57-58	36	22
59	37	23
60-69	38	23
70-73	38	24
74-75	39	24
76-77	40	24
78-79	41	24
80-88	42	24

Number of Similar Units, Similar Common Areas or Exterior Sites in a Building or Development	Pre-1960 or Unknown-Age Building or Development: Number to Test	1960-1977 Building or Development: Number to Test
89-95	42	25
96-97	43	25
98-99	44	25
100-109	45	25
110-117	45	26
118-119	46	26
120-138	47	26
139-157	48	26
158-159	49	26
160-177	49	27
178-197	50	27
198-218	51	27
219-258	52	27
259-279	53	27

Number of Similar Units, Similar Common Areas or Exterior Sites in a Building or Development	Pre-1960 or Unknown-Age Building or Development: Number to Test	1960-1977 Building or Development: Number to Test
280-299	53	28
300-279	54	28
380-499	55	28
500-776	56	28
777-939	57	28
940-1004	57	29
1005-1022	58	29
1023-1032	59	29
1033-1039	59	30
1500	87	44
2000	116	58
2500	145	73
3000	174	87
3500	203	102

Number of Similar Units, Similar Common Areas or Exterior Sites in a Building or Development	Pre-1960 or Unknown-Age Building or Development: Number to Test	1960-1977 Building or Development: Number to Test
4000	232	116

d. Each room of the selected units and facilities should be inspected for signs of deteriorating paint. All exterior and common areas should also be inspected. Attempt to establish a pattern of where deteriorated paint exists in Installation housing. Additional inspections will likely be necessary.

(1) Lead Exposure Risk Assessment generally consists of the following tasks –

(a) Review of available facility information (dates of construction, painting, modification history, drawings and specifications).

(b) Listing and addresses of all Installation housing units and priority facilities with an 8-1/2 inch x 11 inch site plan for each.

(c) Preparation of a Building Characteristic Form and Inventory of Painted Surfaces described by individual structure, type of component, substrate and condition.

(d) Preparation of a written plan to select a statistically valid test sample of units and other family life facilities upon which to perform the LERA.

(e) Performance of the LERA. The assessment includes inspection and collection of dust, paint chip, soil, and water samples. Paint may be tested by a combination of portable X-ray fluorescence (XRF) and paint sample analysis in the laboratory by atomic absorption spectrometry (AAS).

(f) Preparation of a written report for each housing unit/building/environment assessed that indicates and summarizes the presence of lead above the acceptable standard in dust, paint chips, soil, and water. Include a single line drawing for each unit and each building indicating the location of the sample site and the lead hazard represented by that sample.

(g) Preparation of a summary report with an executive summary, a list of all lead hazard areas by unit/building, and list of all lead hazards by type (dust, paint chip, soil, and water). Positive paint chip samples and XRF results should be categorized by surface component (window frame, door, etc.). Prepare separate appendices to include a summary of all sample results, original laboratory reports, and single line drawing sample location diagrams.

(2) Comprehensive LBP Testing –

(a) The purpose of conducting a LBP survey and testing project is to determine the location(s) of LBP- containing building components. Survey and testing is the next step after a LERA has determined where the highest risks exist on an installation. Survey and testing should always be conducted in units where a child has an elevated blood lead (EBL) level or in those units that will be renovated.

(b) Most of the material in this section comes from the Department of Housing and Urban Development's Lead-Based Paint: Guidelines for Hazard Identification in Public and Indian Housing. These guidelines denote a reading of 1.0 microgram/cm^2 (mg/cm^2) or 0.7 mg/cm^2 in Maryland or 0.5 percent lead by weight for paint chip analysis as a positive finding of LBP. This reading is determined by an XRF analyzer or by laboratory analysis.

(3) Dust Wipe Sampling –

(a) Where lead in dust is the major route of exposure, dust wipe samples as an initial lead hazard assessment. Such testing should emphasize rooms in which children are most likely to play. If test results are negative, it may indicate that there is no immediate risk of exposure to lead.

(b) Identify and document all areas to be sampled, room by room. Take care not to remove any substrate material. This documentation should include –

1. Location of samples. Floor samples should be taken near the edge of the room, not the center

2. Surface type (floor, sill, trough)

3. Surface material (wood, metal, resilient flooring)

4. Surface area measurements. All areas must be measured precisely. On floors measure out a 12 inch by 12 inch area. On window troughs and stools measure the area to be wiped.

(c) Begin by collecting the following items needed for sampling –

1. Baby wipes. Use thin, non-alcohol, aloe free, unscented wipes. The wipes must be wet. Dispose of any "dried out" wipes. Because some baby wipes cannot be processed by the laboratory, the person taking the sample should contact the laboratory to determine which brands of baby wipes are acceptable.

2. Measuring tape or ruler.

3. Plastic containers with sealable tops. The samples should be sent to the laboratory in plastic containers because the inside of the container must be rinsed out at the lab and also analyzed. Sandwich type bags should not be used. The person taking the sample should contact the laboratory to determine which containers are acceptable to that particular laboratory.

4. Disposable gloves. A different pair of gloves should be used for each sample to prevent cross-contamination.

(d) Continue by following the sampling procedure –

1. Put on disposable gloves.

2. Throw out the first wipe in the container because it is probably contaminated.

3. Place the next wipe flat on the surface to be sampled. Rub the wipe in an "S" pattern over the entire measured surface. Use an even pressure without scrubbing the surface.

4. Fold the wipe in half, dirty side in, and wipe the entire measured surface again, at a 90 degree angle to the first wipe.

5. Fold the wipe in half, dirty side in, and place in the plastic container.

6. Mark the container with the sample number, location and surface (floor, troughs, sill).

7. Change gloves.

8. Repeat the procedure for each sample area.

9. Place an unused baby wipe into a sample container and mark it as another sample.

10. Submit all the samples to the laboratory for analysis. A sheet should be included summarizing the sample locations. It should be signed and dated just before sealing the shipping container.

(4) Soil Sampling

(a) The risk assessor should determine whether the soil outside of a dwelling poses a significant hazard to children. To accomplish this, it will be necessary to determine not only the concentration of lead in the soil, but also the use pattern (i.e., the frequency of contact and use of soil) for different soil locations and conditions. Since only areas of bare soil are considered potential lead-based paint hazards under the Residential Lead Based Paint Reduction Act of 1992 - Title X, Section 1004(17), the risk assessor should only sample areas of bare soil unless otherwise requested. Except for play areas, yard or soil areas containing a total of less than 9 square feet of bare soil are not considered to be hazardous and need not be sampled. Additional areas may be sampled if the ground covering on those sites may be disturbed in the future (e.g., by gardening or excavation).

(b) Bare soil areas to be sampled for lead contamination include –

1. Outdoor play areas.

2. Building foundation or drip line.

3. Vegetable gardens, pet sleeping areas, bare pathways.

4. Sandboxes.

(c) A minimum of two composite samples per dwelling or building sampled are recommended: one sample from the child's principal play area, one sample from bare soil areas in the front or back yard (if present), and/or an additional sample from the foundation drip line. The yard and building perimeter drip line areas can be combined into a single composite sample, but the play areas should be composited as a separate sample. If there is no bare soil, soil sampling is not necessary. However, in most cases, there will be at least small bare areas that should be sampled.

(d) Samples may be collected using a coring tool to acquire the top half inch (1 cm) of soil. Alternatively, a stainless steel scoop or the lip of the sample container may be used. Soil coring devices may not be useful in sandy, dry, or friable soil.

(e) Each composite sample should consist of approximately equal soil sub-samples collected from 3–10 distinct locations roughly equidistant from each other along an axis. For samples collected along the foundation drip line, sub-samples should be collected at least 2–6 feet away from each other. At other sampling locations, samples should be collected at roughly equidistant points along each axis of an "x" shaped grid.

(f) If paint chips are present in the soil, they should be included as part of the soil sample. However, there should be no special attempt to over-sample paint chips. The laboratory should be instructed to disaggregate ("break up") paint chips by forcing them through a sieve in the laboratory. Although paint chips should not be over-sampled, they should also not be excluded from the soil sample, since they are part of the soil matrix.

(g) Since it is not necessary to know the lead concentration in each soil sub-sample, the soil standard is not divided by the number of sub-samples included in the composite sample. The sample result for the soil composite sample should be compared directly to the standard, as is the case for dust.

4-3. Construction and Renovation

a. As required by the OSHA Lead in Construction Standard (29 CFR 1926.62), if lead is present in the workplace in any quantity, APG or the contractor is required to make an initial determination of whether any employee's exposure to lead exceeds the Action Level (AL) or Permissible Exposure Limit (PEL). The AL is 30 micrograms of lead per cubic meter of air ($\mu g/m^3$) while the PEL is 50 $\mu g/m^3$. Employee exposure is that exposure which would occur if the employee were not wearing a respirator during scheduled construction or renovation. Multi-employer worksites must comply with OSHA Standard 29 CFR 1926.62 (d) (1) (i).

b. When lead is present, some work tasks generate high levels of lead. The OSHA has identified a group of "lead related tasks" that are presumed to generate lead levels in excess of the PELs, and that require interim protection until air monitoring determines the actual lead exposures. Until then, APG must provide workers with respirators, protective clothing, equipment, change areas, hand washing facilities, biological monitoring and training required for an assumed level for these tasks. When the actual level of exposure for the job has been measured, the requirements for that level of exposure can be used. In addition, if an employer has reason to believe a worker's exposure in a job not listed by OSHA may be above the PEL, that employee must be protected as required for exposures above the PEL until monitoring is performed. The "lead related tasks" are listed below in three groups with their assumed lead levels.

c. The APG must assume an exposure over 50 and up to 500 $\mu g/m^3$ for the following tasks –

(1) Manual demolition of structures (e.g., dry wall).

(2) Dry manual scraping.

(3) Dry manual sanding.

(4) Using a heat gun.

(5) Power tool cleaning with dust collection systems.

(6) Spray painting with lead-based paint.

d. The APG must assume exposure over 500 and up to 2500 $\mu g/m^3$ for the following tasks –

(1) Using lead containing mortar.

(2) Burning lead.

(3) Rrivet busting on lead paint.

(4) Power tool cleaning without dust collection systems.

(5) Clean up activities where dry expendable abrasives are used.

(6) Abrasive blasting enclosure movement and removal.

e. The APG must assume exposure over 2,500 $\mu g/m^3$ for the following tasks –

(1) Abrasive blasting.

(2) Cutting.

(3) Welding.

(4) Torch burning.

5. OPERATIONS AND MAINTENANCE ACTIVITIES

5-1. Removing Paint Chips and Debris

Lead-based paint chips and debris should be removed from surfaces in preparation for other O&M work and to prevent future contamination of surrounding areas. Wet methods must be used to minimize the release of airborne dust containing lead.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Dust and chip removal.

(1) Negligible quantities of lead paint dust and chips can be removed effectively by using strong tape. The tape can be wrapped "tacky" side out around the fingers and the surface tapped lightly until all loose paint fragments adhere to the surface of the tape. The used tape should be placed in a disposal bag.

(2) This approach can be used to remove dust from surfaces and inside exposed cavities prior to cleaning.

e. Clean Up –

(1) Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping.

(2) Wiping Work Area: These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(3) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7. Waste Handling for further information.

5-2. Removing Small Areas of Paint

Sometimes small areas of lead-based paint must be removed to prepare the surface for other work. Lead-based paint can be removed from various types of surfaces using several techniques. This work practice includes methods for wet scraping, chemical removal, and mechanical or abrasive paint removal.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Hand scrape paint removal – Mist the area to be scraped. Cut around the area to be removed with a utility knife. Remove the paint to the substrate using a scraper. Collect dust or debris with a wet paper towel. Place all debris in a disposal bag.

e. Clean Up: Cleaning Solution – Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping.

(1) Wiping Work Area: These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7., Waste Handling for further information.

5-3. Penetrating Lead-Based Paint

Lead-painted materials can be drilled, sawed, planed, routed, or cut by following these procedures. This Work Practice can also be used when disturbing lead paint by hammering or prying. Before beginning work determine how much material or paint will be disturbed, in order to select the most appropriate level of preparation.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Surface preparation – Mist the work area. Use a utility knife or scraper to remove any loose paint from the work surface.

e. Drilling, sawing, planning –

(1) Drill or plane through the wet surface, being careful to keep all dust and debris on the plastic drop cloth.

(2) LBP dust and debris can lodge in crevices and in planes. Care must be taken to clean all dust and debris off the plane after completing the task.

f. Prying: For prying jobs, choose the correct tool to fit the task. Pry open object while wet. Place damp cloths under the prying tool to minimize paint damage and debris.

g. Finishing –

(1) Mist area of paint penetration. Carefully chip away all loose paint fragments with a scraper until no loose paint remains along edges. The edges may be wet sanded to smooth them, if needed.

(2) Use wet cloths to collect paint chips and debris. Place all waste in a disposal bag.

h. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping.

(2) Wiping Work Area: These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel.

If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(3) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7. Waste Handling for further information.

5-4. Removing Components from Lead-Painted Surfaces

Lead dust and debris can be generated when "painted-over" items are removed from building surfaces. The essence of this work practice is care and caution to avoid any unnecessary contamination.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Surface preparation – Mist the painted surfaces. Carefully remove any loose paint from the work area using a utility knife or scraper.

e. Removal: Use the proper tool for the task. Avoid using hammers to remove screws from a surface, because they may create unnecessary lead dust. Using the proper tool will minimize disturbance of the painted surface. After the components have been removed, collect any chips or debris with a wet cloth.

f. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping. These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7., Waste Handling for further information.

5-5. Attaching to a Lead-Painted Surface

This work practice describes the procedures for attaching items to lead-painted surfaces. If the work is done cautiously, large quantities of lead dust and debris are unlikely to be generated. High Risk activities involve deteriorated surfaces and require some surface preparation before attachment.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves

(2) Safety glasses

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Surface preparation – No surface preparation is required for direct application of adhesives, nails, or screws if paint is in good condition. Mist the work area if a "starter" hole is to be drilled into the surface.

e. Drilling "starter" hole –

(1) Use Work Practice 5-3 - Penetrating Lead-Based Paint, procedures to drill hole.

(2) The attachment can be made to the surface. Do not disturb the painted surface any more than is necessary.

f. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping. These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7., Waste Handling for further information.

5-6. Applying Coatings to Lead-Painted Surfaces

Surface preparation is an important element of this work practice. It is essential the surfaces be clean and stable prior to application of coating materials. Manufacturers' instructions must be followed precisely. Where paint is in good condition and coating will not cause visible flaking or chipping, coatings can be applied with normal preparation. Where paint is flaking or surface is unsound, preparing and applying a coating will require additional precautions.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Paint and sealer application – Coatings may be applied directly over lead-painted surfaces. Take precautions to minimize disturbance of surfaces below the newly-applied coating.

e. Liquid enclosure material (encapsulants) –

(1) All liquid encapsulants should be applied following the manufacturers' instructions. The material should first be applied to a small area to determine if it is compatible with the lead-painted surface. The material should adhere to the surface, form a continuous hard finish and provide a permanent barrier. Note: Housing and Urban Development defines permanent as 20 year service life. Apply the encapsulant so that it forms a continuous, permanent seal around the lead-painted surface. Do not disturb the surface until the encapsulant completely hardens.

(2) Encapsulants should not be used on friction surfaces such as floors. Friction can cause the encapsulant to deteriorate and expose the lead-painted surfaces again.

f. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping.

These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag.

5-7. Installing Materials Over Lead-Painted Surfaces

Most materials can be installed over lead-painted surfaces. Surface preparation is an important element of this work practice. In some situations it may be desirable to first perform 5-1 - Removing Paint Chips and Debris and/or 5-9 - Patching a Lead-Painted Surface. These materials are not effective in creating "enclosure" to prevent migration of lead paint dust.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Installation – Carefully cut, fit, and install materials without disturbing the surface. If paint chips or debris are created, wet wipe the surfaces and plastic drop cloth and place in a disposal bag.

e. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping. These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7., Waste Handling for further information.

5-8. Enclosing a Lead-Painted Surface

The risk of exposure to lead dust from badly deteriorated surfaces can be minimized by enclosing the surfaces with permanent, rigid barriers. Barriers may be drywall, tongue and groove wood, concrete, masonry, metal, surface applied materials, such as stucco, or other permanent enclosure systems. Enclosures should not be used if future access to the enclosed area may be needed or if the enclosure is likely to be damaged. For surfaces where paint or substrate is deteriorated, Work Practices 5-2 - Removing Small Areas of Paint; 5-3 - Penetrating Lead-Based Paint; or 5-9 - Patching a Lead-Painted Surface should be used prior to enclosing the surface.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance –

(1) Rigid Enclosure –

(a) Cut, fit, and install enclosure materials without disturbing the prepared painted surface.

(b) Apply a continuous bead of sealant at all perimeters, joints, openings, or penetrations to provide a permanent barrier to prevent the migration or release of lead contaminated dust.

(2) Dry wall may be sealed at the edges using tape and spackle; or use "J" channels around cut edges of drywall. Place sealant bead continuously along the back side of rigid enclosure materials, before installation, for a dust-tight seal.

e. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping. These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7., Waste Handling for further information.

5-9. Patching a Lead-Painted Surface

It may be necessary to patch building surfaces prior to executing other lead O&M work practices or to restore a surface. The levels of expected dust generation will depend on the type of material (wood versus plaster, for example) and on the condition of both paint, surface material, and substrate. Where the paint and the surface to be patched are in good condition and patching will

not cause visible flaking or chipping of paint, patching can take place with normal preparation. Where existing paint or surfaces are unsound or patching will cause extensive paint disruption, additional precautions will be required.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Patching – Install patch as smoothly as possible over the surface. Use a putty knife or similar tool to further smooth surface. Wet Sanding may be used to finish, if desired. Use Work Practice 5-6 - Applying Coatings to Lead-Painted Surfaces to apply paint or sealer over the surface after Patching.

e. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping. These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work

surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7., Waste Handling for further information.

5-10. Exposing Lead Paint Contaminated Cavities

Removal of building components such as window casings and doorjambs may release large accumulations of lead dust and debris. The size of opening and the height that debris may fall should be considered in establishing the risk level. Lead dust falling 9 feet from crown molding creates a much greater risk of exposure than does the same quantity of lead dust exposed behind baseboard molding at floor level. This work practice minimizes the exposure to lead contaminated dust when cleaning dust and debris from cavities exposed by removing building components.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

(3) If after exposing a cavity, more dust or debris is present than anticipated, perform the General Procedures corresponding to the higher level of dust or debris.

(4) Warning: Before removing components that expose electrical connections, disconnect all power and lock out the circuit!

d. Performance –

(1) Component removal: Remove the cavity cover using an appropriate tool. If the component is covered with lead-based paint, use Work Practice 5-3 - Penetrating Lead-Based Paint.

(2) Cleaning –

(a) Use wet cloths to wet wipe the interior surfaces and place in a disposal bag. Allow surfaces to dry before using electrical tools on them or restoring electricity to circuits that have been de-energized.

(b) Replace the building components to seal the cavity. Use Work Practice 5-5 - Attaching to a Lead Painted Surface, if the components are attached to a surface covered by lead-based paint.

e. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping. These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7, Waste Handling for further information.

5-11. Door and Window Maintenance

Friction between lead-painted doors and windows and jambs may produce lead dust. Lead dust may also be formed by sticking doors that crush lead-based paint on the hinge side of the door. Door and window maintenance will frequently involve using work practices 5-2 - Removing Small Areas of Paint, 5-3 - Penetrating Lead-Painted Surfaces, 5-5 - Attaching to a Lead-Painted Surface, and 5-10 - Exposing Lead-Paint Contaminated Cavities. This work practice includes additional precautions for certain door and window maintenance, such as rebuilding, removing, and replacing doors and windows.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work.

d. Performance: Door Maintenance –

(1) If the hinges are loose and the door jamb is sound, remove the hinge screws one at a time. Place a dowel in the screw hole. Break off or cut the dowel flush to the surface, and install new screws.

(2) If dowels are not large enough to tightly fill screw holes, use a utility knife to cut around the edges of the hinge if it has been painted over. Move the hinge away from the jamb and place dowels in the screw holes. Break or cut the dowels off flush to the surface, and reattach the hinge to the jamb.

(3) If the door is crushing against the jamb on the hinge side, unscrew the hinge screws and add a shim behind the hinge leaf to create a 1/8" space between the door and the hinge jamb. If the shim causes the door to rub the door frame on the latch side, plane the hinge side of the door. Replace the hinge screws.

e. Clean Up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping.

These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7., Waste Handling for further information.

5-12. Cleaning or Removing Contaminated Carpet

It is extremely difficult, sometimes impossible, to remove lead dust from contaminated carpet. Large quantities of dust can accumulate under carpets. Some studies indicate that dry vacuuming can increase the risk of lead exposure by bringing accumulated lead dust nearer to the surface. Cleaning carpets by wet methods, when performed properly, can be useful in removing gross accumulations of lead dust and debris. Methods are also included for removing and disposing of contaminated carpet.

a. General Procedures –

(1) Work Practices using Low Risk General Procedures are those activities requiring a minimal amount of preparation and worker protection because a negligible amount of lead dust may be generated or disturbed. This amount of lead dust may be non-visible or barely visible and localized. However, small paint particles, chips and debris may result from any disturbance of a painted surface.

(2) These preparation and cleanup procedures were designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice.

b. Personal Protective Equipment –

(1) Disposable gloves.

(2) Safety glasses.

c. Preparation for Dust Control –

(1) Place a plastic drop cloth on the floor under the immediate work area. The drop cloth should be large enough to catch any lead dust released. It is preferable, but not essential, to secure the drop cloth to adjacent walls.

(2) No one should be allowed on the drop cloth who is not involved in performing the work..

d. Performance –

(1) Surface preparation –

(a) Move objects off of the area to be cleaned. Do not use plastic drop cloths. Collect visible lead paint debris with wet cloths and/or HEPA vacuum before starting work.

(b) The carpet should only be cleaned using a HEPA vacuum or wet methods.

(2) HEPA vacuuming: Vacuum the area thoroughly with at least two passes over each area that are 90° to each other.

(3) Wet cleaning: Mist the area of the carpet to be cleaned. Thoroughly clean the carpet using lead-specific cleaning solution and appropriate rags or sponges. Rinse the area thoroughly with clean water and dispose of any waste appropriately.

e. Clean up –

(1) Cleaning Solution: Follow the manufacturer's instructions to mix the cleaning solution. Keep the cleaning solution in a labeled container until used for wet wiping or wet mopping. These procedures are intended to remove dust and debris from the work area following completion of the task. Put on disposable gloves. Pour cleaning solution onto a cloth or paper towel. Wring excess solution into bucket. Wipe work area with wet towel. If more than one paper towel is needed, dispose of the first towel and use a second one for the next section. Wet another towel with the clean water in the bucket. Wring out excess water. Rinse the work surface with the wet towel. If more than one paper towel is needed, dispose of the first paper towel and use a second one for the next section. Wipe off the drop cloth and tools using the same procedures. Fold up drop cloth for future use.

(2) Disposal: Place all waste in a disposal bag and seal the bag. Refer to Section 7. Waste Handling for further information.

6. USE OF CONTRACTORS FOR LEAD ACTIVITIES

The LHMP shall include control over contracted services.

6-1. Custodial Work–

Contractors involved in cleaning and other custodial services which are in the vicinity of, but do not disturb lead containing materials, debris or dust shall be notified of the location of lead. This notification shall be signed by the contractor who employs the workers and returned to the Lead Program Manager for documentation of the notification. Contractors must follow all Federal, State, Local and APG regulations for custodial work.

6-2. Repair and Maintenance –

a. Repair or maintenance in controlled areas or on controlled systems must involve specific work procedures using trained workers. The National Institute of Building Sciences (NIBS) Publication, Model Guide Specifications for Lead Abatement and Management in Buildings, contains detailed information on contracting this type of work. Detailed specifications can also be developed from the work practices in this manual. Specifications can then be attached to a purchase order or made part of a set of a contract documents.

b. A convenient method for acquiring outside contract services is by use of an annual service contract for the lead hazard O&M services. Unit prices can be established for each work activity based upon specified work practices. Pricing for an O&M activity can then be determined by applying the unit price to the quantity of work performed.

c. A contractor is liable for the safety of those working for him. However, if improperly drawn up, the contract between the Army and contractor can transfer part of this liability to the Army. This frequently occurs due to work specifications that attempt to be over-protective or ensure OSHA compliance without adequately defining the role of the contractor as the protector of his employee. The standard procedures for contracting maintenance services must include submittals from the contractor to the Army demonstrating compliance with worker and respiratory protection requirements.

d. Contractors must follow all Federal, State, Local and APG regulations for repair and maintenance work. The APG Safety office has the authority to disapprove any work plan which does not meet any Federal, State, Local and APG regulations.

6-3 Abatement

a. These regulations establish appropriate techniques for abatement of lead-containing substances from interior and certain exterior areas in group day care centers, in all residential property including owner-occupied residential property, and in buildings appurtenant to group day care centers and residential properties.

b. A contractor performing abatement of lead-containing substances may not use the following methods –

(1) Open flame burning.

(2) Dry sanding.

(3) Open abrasive blasting.

(4) Uncontained hydro-blasting.

(5) Methylene chloride for interior use except that methylene chloride may be used in interior work areas for localized touch-up.

(6) Dry scraping.

(7) Contractors must follow all Federal, State, Local and APG regulations for abatement work. The APG Safety office has the authority to disapprove any work plan which does not meet any Federal, State, Local and APG regulations.

6-4. Accreditation and Training

a. COMAR 26.16.01 establishes –

(1) Requirements and standards for the accreditation of contractors, supervisors, inspectors, and trainers providing lead paint abatement services for residential, public, or commercial buildings, bridges, or other structures or superstructures;

(2) Job performance standards for contractors, supervisors, and other persons disturbing a lead-containing substance in residential, public, and commercial buildings; and

(3) Training requirements for workers and project designers who perform lead paint abatement services.

b. Applicability –

(1) Determination of lead content in paint shall be based on –

(a) Use of an XRF by an accredited person;

(b) Analysis by a qualified laboratory of paint samples from surfaces to be disturbed during the project;

(c) A specific knowledge of the painting history of the structure; or

(d) Other procedures approved on a case-by-case basis by the APG Safety Office.

7. WASTE HANDLING

7-1. Background

The Resource Conservation and Recovery Act (RCRA) regulates hazardous waste through a "cradle-to-grave" system to ensure the proper management from generation of the waste until ultimate disposal. Maintenance and repair projects involving lead-based paint may generate waste subject to RCRA. Disposal restrictions are based on the possibility that lead content in such wastes may leach into the water table if placed in a landfill. Specific laboratory tests required under RCRA are designed to measure this potential. Refer to Section III , "Lead Waste Characterization and Disposal", of APG's Guidance for Proper Management of Lead Paint Abatement Projects, for further information.

7-2. Testing

a. Removed substrate components that contain LBP can be hazardous or non-hazardous. All LBP removed from a substrate by any method will likely be hazardous waste. The polyethylene sheeting used to contain dust during maintenance and repair activities and personal protective suits will be non-hazardous waste as long as decontamination occurs with a HEPA-filtered vacuum. The Designated Person will evaluate the waste streams associated with Low Risk and High Risk activities to determine if the waste is subject to RCRA. The Designated Person should check with the waste disposal contractor for other waste sampling and analysis requirements (i.e., profile requirements).

b. Paint Chips: Paint film removal activities result in a concentrated mass of paint chips. Collect paint chips in approved containers. At a minimum, a Toxicity Characteristic Leaching Procedure (TCLP) test is required (EPA Method SW-846 1311) followed by analysis for Lead (SW-846 6010B). The paint chips will be considered hazardous waste if the lead concentration exceeds 5.0 milligrams of per liter (mg/L).

c. Painted Components: Lead-painted components such as: windows and windowsills, doors and door frames, baseboards, trim along with walls often contain high levels of lead. Work may also include removal of wall sections covered with LBP. A representative and weighted sample of painted components based on their contribution to the waste stream must be collected for analysis. At a minimum, a TCLP test is required (EPA Method SW-846 1311) followed by analysis for Lead (SW-846 6010B). The paint chips will be considered hazardous waste if the lead concentration exceeds 5.0 mg/L.

d. Paint Waste with Chemical Stripper: The use of chemical strippers in maintenance and repair projects may also render the waste as hazardous. Most chemical strippers are very caustic (pH 13), and even after use and neutralization, will generally have a pH of 9 - 10. TCLP testing for lead and testing for corrosivity is required when chemical strippers are used. Methylene chloride strippers are strictly prohibited from use. Corrosivity is a function of pH and is measured using EPA Method SW-846 9040. Wastes are considered hazardous due to their characteristic of corrosivity if the pH is below 2 or above 12.5. Contact the waste disposal contractor with chemical stripper information to ensure that waste characterization and profiling is complete.

e. Rinsate: Use of chemical strippers, other solvent based chemical products, and high phosphate cleaning agents may require laboratory analysis of the waste water (rinsate). Contact the waste disposal contractor with information obtained from the Material Safety Data Sheet (MSDS) to ensure that the waste characterization and profiling is complete.

7-3. Disposal of Wastes

a. Hazardous Waste Disposal –

(1) If the waste is determined to be hazardous by the TCLP test, the facility will apply for an EPA identification number from the appropriate regional office based on small quantity

generator status, (less than 1,000 kilograms (kg) per month but greater than 100 kg per month). If the facility generates less than 100 kg per month, it may quality for conditionally exempt small quantity generator status (CESQG). Conditionally Exempt Small Quantity Generators are not required to have an EPA identification number. Regardless of generator status, the facility should contract with a licensed hazardous waste hauler for transport to a certified Treatment, Storage, and Disposal (TSD) facility.

(2) Wastes must be properly packaged, complying with Department of Transportation (DOT) requirements for hazardous waste containers. The facility representative will complete a Uniform Hazardous Waste Manifest which will follow the waste to the disposal site. The facility must receive a fully executed waste manifest within 45 days of transport. The facility, depending on its generator status may be required to submit biennial reports to state agencies.

b. Non-Hazardous Waste Disposal: If the waste is determined to be non-hazardous by the TCLP test the properly packaged materials may be transported to a non-certified rubble landfill. Wastewater, if deemed non-hazardous, may be disposed into the sanitary sewer.

7-4. EPA Residential Exemption

In a Regulatory Status memo, dated August 2000, the EPA clarified that contractors can manage residential LBP waste as household waste. The waste consists of building parts, such as doors, windows, window frames, painted woodwork, and paint chips. These items, taken as a whole, would likely pass a TCLP test.

8. TRAINING REQUIREMENTS

a. Training is one of the keys to a successful lead-based paint lead management program. In general, training provides a background on lead-based paint uses and health hazards, regulations, respiratory and other personal protection equipment and key concepts of lead hazard control. Trained personnel reduce the risk faced by both building workers and occupants from the release of lead dust or fume due to improper work practices.

b. Low-risk personnel will not engage in the disturbance of lead-based paint in quantities exceeding 2 square feet as per NIBS Guidelines. Per 40 CFR, §745.82, minor repair and maintenance activities are excluded. High risk personnel shall receive training following the OSHA Lead Construction Standard (29 CFR, §1926.62) for activities involving the disturbance of greater than or equal to 2 square feet. All custodial and maintenance personnel, or other persons involved in lead-based paint related activities must receive training if they have a potential to disturb lead-based paint in performance of a maintenance or housekeeping task. Table 3 lists the training requirements for each type of personnel involved or coordinating lead-based paint maintenance operations.

(1) Low Risk: A task that creates less than 2 square feet amount of lead-contaminated dust by be generated, requiring a minimal amount of preparation and worker protection. Negligible may be non-visible or barely visible and localized.

(2) High Risk: A task that creates a greater than or equal to 2 square feet amount of lead-contaminated dust and debris will be generated or disturbed, but neither the quantities nor the duration of effort warrant full-scale work area preparation and worker protection. A moderate amount is clearly visible and may contain debris and paint chips, but will not spread beyond a small area drop- cloth to any other surface in the room.

c. Custodial and maintenance activities are further defined as low-risk or high-risk. Table 4 is a summary of low-risk and high-risk job designations for surfaces known or suspected to contain lead-based paint. Low-risk Work Practices are those activities requiring a minimal amount of preparation and worker protection due to the surface area being disturbed, (less than 2 square feet). A negligible amount of lead dust will be generated in the form of small paint particles, chips and debris. These preparation and clean-up procedures are designed to protect workers and work areas from lead-based paint dust and debris and to aid in the cleaning of any dust or debris created as a result of the work practice. High-risk Work Practices are those activities requiring a higher level of area preparation and worker protection due to a greater surface area being disturbed, (greater than or equal to 2 square feet). A moderate amount of dust and debris is present, but will not spread beyond a small area drop cloth to any other surface in the room.

Table 2: Lead Training and Certification Requirements Listed by Type of Operation

Type of Personnel	**Initial Training Requirement (Duration/Title)**	**Refresher Training Requirement (Duration//Frequency)**	**Regulatory Citation**
Low Risk-Maintenance, Housekeeping Supervisors, and Workers	Training in compliance with 29CFR 1926.62(l) and/or 29CFR 1910.1025 (l)	Not specified	29 CFR, §1926.62(l) 40CFR,§745.82(b)(1)
High Risk-Maintenance, Housekeeping Supervisors, and Workers	Training in compliance with 29CFR 1926. 62(l) and/or 29CFR 1910.1025.(l)	Not specified	29 CFR, §1926.62(1) 40CFR,§745.82(b)(1)
Personnel conducting XRF surveys, or lead-based paint identification.	24-Hour Lead Paint Inspector	4-Hours Every 2 Years	40 CFR, §745-225 (c)(6)(i) COMAR 26.16.01.14 40CFR,§745-225 (d)(4) 40CFR,§745-225

Type of Personnel	Initial Training Requirement (Duration/Title)	Refresher Training Requirement (Duration//Frequency)	Regulatory Citation
			(e)(2)
Personnel conducting risk assessments of the condition of lead based paint.	16-Hours Lead Paint Risk Assessor	8-Hours Every 2 Years	40 CFR §745-225 (c)(6)(ii) COMAR 26.16.01.16 40CFR,§745-225 (d)(4) 40CFR,§745-225 (e)(2)
Personnel who conduct visual inspections and collect dust samples to verify conformance with the Lead Risk Reduction Standard	16-Hours Lead Paint Visual Inspector.	8-Hours Every 2 Years	COMAR 26.16.01.15

Table 3: Low Risk and High Risk Task Designations

JOB DESCRIPTION	Low Risk (< 2 ft^2)	High Risk (≥ 2 ft^2)
Repainting (includes surface preparation)		•
Plastering or wall repair		•
Window Repair		•
Window pane or glass replacement only	•	
Water or moisture damage repair (repainting and plumbing)		•
Door repair	•	

JOB DESCRIPTION	Low Risk (< 2 ft^2)	High Risk (≥ 2 ft^2)
Building component replacement		•
Welding on painted surfaces		•
Door lock repair or replacement	•	
Electrical fixture repair	•	
Floor refinishing		•
Carpet replacement		•
Grounds-keeping	•	
Radiator leak repair	•	
Baluster repair (metal)		•
Demolition		•

9. RECORDKEEPING

The LPM designated for APG must meet the following requirements with respect to maintenance of records associated with the presence of lead hazard-related activities within the facility.

a. Lead Survey Records: The facility has relied upon the survey reports sampling and laboratory analysis to demonstrate that certain suspect building materials in buildings do not contain LBP or other lead containing materials. Without this corroborative information, these materials would have to be presumed to contain lead. Therefore, it is imperative that this data be maintained for as long as they are relied upon to rebut the presumption.

b. Lead Hazard Reduction Records: Section 1018 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 requires lead hazard reduction records be maintained for six (6) years or for as long as they are relied upon to rebut the presumption of a suspect LBP or other lead containing material.

c. Personnel Training Records: Personnel training records must be maintained for one (1) year beyond the last date of employment for each employee who has received such training.

d. Medical Surveillance Records: Medical surveillance records must be maintained for thirty (30) years beyond the last date of employment for each employee who has received such training.

Appendix A

Appendix A

Federal, State, and Army Regulations and Guidelines

This Appendix includes an overview of the Federal, State, and Army Regulations and Guidelines that pertain to the management and removal of lead containing materials. Prior to beginning any lead project, the full text of the regulation should be reviewed to determine all applicable requirements.

1. Federal Regulations

1-1. 29 CFR 2926.62 – Lead in Construction Standard

a. The OSHA Lead Exposure in Construction Standard went into effect June 3, 1993. The standard contains employee protection requirements for construction workers exposed to lead. The standard applies to renovation, maintenance, alteration, and repair work, including painting and decorating, and maintenance operations associated with the standard's construction activities. It does not include routine cleaning and repainting (e.g., minor surface preparation and repainting of rental apartments between tenants or at scheduled intervals) where there is insignificant damage, wear or corrosion of existing lead-containing paint and coatings or substrates, which are covered by OSHA's general industry standard for lead.

(1) Applies to all construction work not covered by 29 CFR 1910.1025(a)2, Occupational Safety and Health Standards for General Industry, where an employee may be occupationally exposed to lead.

(2) Defines construction work as "...work for construction, alteration and/or repair, including painting and decorating. It includes but is not limited to..."

(a) Demolition or salvage where lead-containing materials are present.

(b) Removal or encapsulation of lead-containing materials.

(c) New construction, alteration, repair, or renovation of structures, substrates, or portions of structures or substrates containing lead.

(d) Installation of lead-containing products.

(e) Lead contamination or emergency cleanup.

(f) Transportation, disposal, storage, or containment of lead or lead-containing materials at a construction site.

(g) Maintenance operations associated with construction activities.

b. The OSHA lead standard sets limits for the amount of lead in the air and in the blood of exposed workers. Certain actions must be taken in work areas where these limits have been exceeded. The Permissible Exposure Limit (PEL) is the highest amount of lead in air to which employees may be exposed.

c. The Action Level (AL) is an amount of lead in air at or above which employers must perform certain actions in addition to those they perform for any work involving occupational exposure of employees to lead. The following limits are set by the standard:

(1) AL = 30 micrograms (μg) of lead per cubic meter (m^3) (30 $\mu g/m^3$) of air.

(2) PEL = 50 micrograms of lead per cubic meter (50 $\mu g/m^3$) of air*.

(3) Exposure Assessment –

(a) If lead is present in the workplace in any quantity, the employer is required to make an initial determination of whether any employee's exposure to lead exceeds the AL. Employee exposure is that exposure which would occur if the employee were not wearing a respirator. One method is to collect air samples from the worker's breathing zone and have them analyzed by a laboratory. The samples should represent the worker's regular, daily exposure to lead. The samples should be taken for the full work shift. At least one sample for each job classification in each work area must be obtained. The results should be compared to the PEL and AL. The workers' exposure is the exposure that would occur if they were not wearing respirators.

(b) When lead is present, some work tasks generate high levels of lead. The OSHA has identified a group of "lead related tasks" that are presumed to generate lead levels in excess of the PELs, and that require interim protection until air monitoring determines the actual lead exposures. Until then, employers must provide workers with respirators, protective clothing, equipment, change areas, hand washing facilities, biological monitoring and training required for an assumed level for these tasks. When the actual level of exposure for the job has been measured, the requirements for that level of exposure can be used. In addition, if an employer has reason to believe a worker's exposure in a job not listed by OSHA may be above the PEL, that employee must be protected as required for exposures above the PEL until monitoring is performed. The "lead related tasks" are listed below in three groups with their assumed lead levels.

(c) Employers must assume an exposure over 50 and up to 500 $\mu g/m^3$ for the following tasks–

1. Manual demolition of structures (e.g., dry wall).

2. Dry manual scraping.

3. Dry manual sanding.

4. Using a heat gun.

5. Power tool cleaning with dust collection systems.

6. Spray painting with lead-based paint.

(d) Employers must assume exposure over 500 and up to 2500 $\mu g/m^3$ for the following tasks –

1. Using lead containing mortar.

2. Burning lead.

3. Rivet busting on lead paint.

4. Power tool cleaning without dust collection systems.

5. Clean up activities where dry expendable abrasives are used.

6. Abrasive blasting enclosure movement and removal.

(e) Employers must assume exposure over 2,500 $\mu g/m^3$ for the following tasks –

1. Abrasive blasting.

2. Cutting.

3. Welding.

4. Torch burning.

(f) In certain cases, the employer may use existing air monitoring results, instead of taking new air samples, to make the initial determination of whether the worker's exposure exceeds the PEL or AL. The existing results must be personal air samples that are less than 12 months old. The work that was monitored must closely resemble the processes, material types, control methods, work practices, and environmental conditions of the current operation. The sampling and analytical methods used must meet the standards' technical accuracy requirements. Air monitoring results meeting these requirements are known as "historical data."

(g) If the initial air monitoring shows that employee exposure is below the AL, further air monitoring is not required unless there is a change in equipment, processes, controls or personnel, or a new task is added that may result in new or additional exposures to lead.

(h) If the initial air monitoring shows that employee exposure is at or above the AL, but at or below the PEL, the employer must perform additional air monitoring every 6 months. The air monitoring must continue until two consecutive measurements, taken at least 7 days apart, are below the AL. The air monitoring can then be stopped.

(i) If the initial air monitoring shows that employee exposure is above the PEL, the employer must repeat the air monitoring quarterly. The air monitoring must continue until two consecutive measurements, taken at least 7 days apart, are at or below the PEL. If the results are at or above the AL then air monitoring must continue every 6 months. If the results are below the AL, then no further air monitoring is required unless changes occur that may result in new or additional exposures to lead.

(j) Employees must be notified in writing of the results of their air monitoring. This report must be given within 5 working days after completion of the exposure assessment. Employees must also be told in writing when their exposure is at or above the PEL. This notice must include what actions are being taken to reduce lead exposures below the PEL. Employees also have the right to observe the air monitoring.

(4) Compliance Program –

(a) The employer must implement a written "compliance program" before starting a job where employees may be exposed to lead above the PEL. Employers must first identify engineering and work practice controls to reduce and maintain employee exposures to lead at or below the PEL. The written program must include –

1. Descriptions of activities that produce lead exposures.

2. Descriptions of the specific means to be used to reduce exposure; where engineering controls are used, the plans and studies used to determine the methods selected.

3. A detailed schedule for implementing the compliance program.

4. A report of the technology considered in meeting the PEL.

5. Air monitoring data that documents the source of the lead exposure.

6. Specific work practice procedures to be used on the project.

7. A schedule of administrative controls, if these are to be used.

8. A description of all arrangements on multi-employer work sites to inform affected employers about the lead project.

(b) The compliance program should also include information on inspections of the job site by a competent person, updating of the program at least every 6 months, and the availability of the plan to affected employees, their representatives, and appropriate enforcement agencies. A competent person is one who is capable of identifying existing and predictable lead hazards and who has authority to take prompt corrective measures to eliminate them.

(5) Respiratory Protection –

(a) Respirators are required for employees in the following situations –

1. When an employee's exposure exceeds the PEL.

2. Whenever an employee requests a respirator.

3. As an interim protection for employees performing one of the "lead-related task."

(b) Employers must have a written respiratory protection program in accordance with 29 CFR 1910.134. The lead standard includes a table specifying which respirators should be used when exposures are above the PEL or when performing one of the "lead-related tasks." Any air-purifying respirator used for lead work must be equipped with high efficiency particulate air (HEPA) filter cartridges. Employers should refer to this table before writing a lead-related respiratory protection program.

(5) Protective Work Clothing and Equipment –

(a) Employers must provide protective clothing to employees –

1. When an employee's exposure exceeds the PEL.

2. When employees are exposed to lead or other compounds that may irritate the skin and eyes.

3. When an employee is performing any of the "lead-related tasks."

(b) Protective clothing must be appropriate for the work, for example –

1. Coveralls or full body work clothes.

2. Gloves, hats, and shoes or disposable shoe coverlets.

3. Face shields, vented goggles, or other eye and face protection.

(c) Clean, dry protective clothing must be given weekly to employees exposed above the PEL and up to 200 $\mu g/m^3$. Protective clothing must be provided daily if employees are exposed to lead above 200 $\mu g/m^3$. The employer is responsible for the following items related to protective clothing and equipment –

1. Provide for cleaning, laundering, and disposal.

2. Repair or replace as needed to maintain effectiveness.

3. Ensure that all clothing is removed at the end of the work shift in the designated change area.

4. Ensure that any contaminated protective clothing to be cleaned, laundered, or disposed of is placed in a closed container in the change area. The container should prevent the spread of lead outside the container.

5. Inform in writing anyone who cleans or launders the protective clothing or equipment of the potentially harmful effects of exposure to lead.

6. Ensure that containers of contaminated protective clothing or equipment are labeled as follows "Caution: Clothing contaminated with lead. Do not remove dust by blowing or shaking. Dispose of lead contaminated wash water in accordance with applicable Local, State, or Federal regulations".

7. Prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means that disperses lead to the air.

(6) Housekeeping –

(a) The following housekeeping procedures must be followed on all jobs where employees are covered under this standard –

1. Maintain surfaces as free of lead and lead-contaminated dust as is practical.

2. Clean surfaces with a vacuum equipped with HEPA filters, or other methods that minimize the likelihood of lead becoming airborne.

3. Shoveling, dry or wet sweeping, and brushing can be used only where vacuuming or other equally effective methods have been tried and found not to be effective.

4. Compressed air must not be used to remove lead from any surface unless it is used in conjunction with a ventilation system that captures the airborne dust created by the compressed air.

(b) Food, beverages, and tobacco products may not be present, used, or consumed, and cosmetics may not be applied in areas where employees are exposed to lead above the PEL.

(c) The employer must provide the following when workers are exposed to lead above the PEL or are doing any of the "lead-related tasks" –

1. Change areas (above PEL or lead-related tasks).

2. Showers, if feasible (above PEL).

3. Clean eating areas (above PEL).

(d) In addition, hand washing facilities, which are required at any exposure level, must be provided in accordance with 29 CFR 1926.51(f).

(6) Medical Surveillance and Medical Removal Protection –

(a) Employers shall make initial medical surveillance available to any employee exposed at or above the AL on any day. This initial surveillance must include sampling for blood lead and zinc protoporphyrin levels. Employers must also provide biological monitoring for all employees performing lead-related tasks presumed to create employee exposures above the PEL. A medical surveillance program must be provided for employees exposed at or above the AL for more than 30 days in any consecutive 12 months. This program will include biological monitoring and medical examinations and consultations. Blood sampling and analysis for lead and zinc protoporphyrin must be made available –

1. At least every 2 months for the first 6 months and every 6 months thereafter, for employees exposed at or above the AL for more than 30 days in any consecutive 12 months.

2. At least every 2 months when blood lead level is at or above 40 μg/dl, and for employees exposed above the AL. Testing should continue at this rate until 2 consecutive blood sample results are below 40 μg/dl.

3. At least monthly during a period when an employee has been removed from work because of high blood lead levels.

4. If an employee's blood sample results exceed the criterion level for removal, another blood sampling test should be provided within 2 weeks.

(b) Medical exams and consultations must be made available on the following schedule:

1. At least annually for an employee whose blood lead level was 40 μg/dl or greater in the last 12 months.

2. As soon as possible for any employee who has developed signs and symptoms commonly associated with lead poisoning or who desires medical advice concerning the effects of current or past exposure to lead on the ability to have a healthy child

3. As soon as possible upon learning an employee is pregnant

4. As soon as possible after an employee has shown difficulty in breathing during a respirator fit test or use.

5. As medically appropriate for each employee removed from lead exposure due to a risk of sustaining material impairment to health.

(c) Employers must remove employees with lead exposure at or above the AL each time –

1. A periodic and follow up blood sampling test indicates a blood lead level at or above 50 µg/dl; or

2. A final medical determination indicates a detected medical condition that increases health risks from lead exposure.

(d) A doctor may make a final medical determination to remove an employee from working with lead. The doctor is not to reveal any findings, lab results, or diagnosis unrelated to occupational exposure to lead to the employer. An employee exposed to lead at or above the AL must be removed from lead work, if the employee has a blood lead level at or above 50 µg/dl on two separate testing events, two weeks apart. An employee can return to lead work when his or her blood lead level result is at or below 40 µg/dl on two consecutive testing events or a doctor has made a medical determination that the employee can return to lead work. The employer must provide wages and benefits for any employee removed from lead work for up to 18 months, or as long as the job exists.

(e) The employer may not provide "prophylactic chelation." Prophylactic chelation is the routine use of chelating (binding) or similar acting drugs to prevent elevated blood levels in workers who are occupationally exposed to lead, or the use of these drugs to routinely lower blood lead to levels believed to be safe. Chelating drugs should not be used as a substitute for engineering controls, appropriate work practices, and proper personal protective equipment.

(7) Employee Information and Training –

(a) Employers must provide hazard communication training for all employees exposed to lead at any level before they start their job assignment.

(b) For employees exposed below the AL, basic training is required, including instruction in –

1. The hazards of lead.

2. Warning signs, labels, and material safety data sheets (MSDSs).

3. The requirements of the OSHA lead in construction standard.

(c) For employees exposed to lead at or above the AL on any day, a broader training program must be provided initially and at least annually afterward. The same training must also be provided initially to any employees subject to exposure to lead compounds that could irritate the skin or eyes. The training program for these employees must include –

1. The basic training topics listed above.

2. The contents of the lead in construction standard and its appendices.

3. The nature of tasks that could lead to exposures at or above the AL.

4. The purpose, proper selection, fitting, use, and limitations of respirators.

5. The purpose and description of the medical surveillance program and medical removal program.

6. The engineering and work practice controls associated with an employee's job assignment(s).

7. The contents of the employer's written compliance program.

8. Instructions to employees prohibiting use of chelating agents except under medical supervision and removal from lead exposure.

9. The right of employees to access their exposure and medical records.

(d) For employees performing work in any of OSHA's "lead related tasks," as described above, or where an employer has reason to believe that the exposure is above the PEL, and until the employer performs an exposure assessment that documents that employee exposure is below the PEL, the employer shall train the employees in –

1. The basic training topics listed above.

2. The purpose, proper selection, fitting, use, and limitations of respirators.

3. Safety issues related to the work.

(e) Employers must post the following readily visible warning signs in areas where employees' exposure is above the PEL –

WARNING

LEAD WORK AREA

(8) Recordkeeping – Employers shall establish and maintain records with the following information –

(1) Exposure assessment data, including name, social security number, and job classification of the employee who was monitored and of all other employees whose exposure the sampling is intended to represent; the date, number, duration of sampling, location, result(s), description of the sampling procedure, analytical methods used and evidence of their accuracy, type of respirator worn (if any), and the environmental factors that could affect the sampling results.

(a) Training done for employees.

(b) Records of each employee subject to medical surveillance.

(c) Cases of medical removals.

(d) Objective data for exemption from requirement of initial monitoring.

(2) 29 CFR 1910.20(d)(1)(i) and 29 CFR 1926.33 require that medical records must be maintained for 30 years past the end of employment. Air monitoring records must be maintained for 30 years. Training records must be maintained for 1 year past the end of employment. All records are to be available upon request to the OSHA Administrator, the Director of the National Institute for Occupational Safety and Health (NIOSH), affected employees, former employees or

their designated representatives for examination and copying. If the employer goes out of business and there is no successor, records are to be transferred to the NIOSH Director. Contact NIOSH prior to transferring any records for instructions and specific requirements. Do not send any employee records to OSHA or NIOSH without first contacting the Agency.

1-2. 29 CFR 1910.1025 – General Industry

a. Much of OSHA's general industry standard (29 CFR 1910.1025) is similar to the construction industry standard discussed above. The major differences between the two standards, and some of their common elements, are discussed here.

b. The general industry standard applies to custodial operations, such as cleaning and vacuuming, when they are done in work not related to construction operations. It also includes routine cleaning and repainting (e.g., minor surface preparation and repainting of rental apartments between tenants or at scheduled intervals) where there is insignificant damage, wear or corrosion of existing lead-containing paint and coatings or substrates.

c. Employees performing maintenance activities not associated with construction work are covered by the general industry standard for lead. Maintenance activities covered by the general industry standard are those that involve making or keeping a structure, fixture, or foundation in proper condition in a routine, scheduled, or anticipated fashion.

(1) The PEL and AL. For both standards, the PEL and AL are 50 $\mu g/m^3$ and 30 $\mu g/m^3$, respectively, for an 8-hour time-weighted average.

(2) Exposure Assessment –

(a) For the construction standard, certain identified tasks are presumed to have exposures above (and, in some cases, significantly above) the PEL. Personal protective measures must be used while doing an initial exposure assessment of these tasks.

(b) The general industry standard does not identify tasks for special consideration. The choice of protective measures is based on exposure monitoring of the operation.

(3) Respiratory Protection - Respiratory protection is not required under either standard when the exposure assessment shows that lead levels are at or below the PEL. However, both standards require that respirators be provided to employees who request them.

(4) Controls and Hygiene –

(a) For both standards, a new exposure assessment must be done when controls, equipment, or tasks are changed in a way that may result in additional employee exposures at or above the AL or above the PEL. Hand washing facilities must be provided for employees exposed to lead at any level.

(b) For the construction standard, when showers are not feasible, employees must wash their hands and face at the end of each work shift. Vacuums used in construction housekeeping must have HEPA filters which are used and emptied in a manner that minimizes the reentry of lead into the workplace.

(c) For the general industry standard, vacuums used in housekeeping must be used and emptied in a manner that minimizes the reentry of lead into the workplace. While HEPA vacuums are not mentioned in the general industry standard, they are the only vacuums specified

by OSHA (in the construction standard) as minimizing the reentry of lead-contaminated dust. When HEPA vacuuming is not needed or practical, wet methods should be used for dust control. Shoveling and dry sweeping or brushing of lead accumulations is not recommended.

(5) Medical Surveillance and Examination

(a) For both standards, a medical surveillance program must be implemented for all employees who are or who may be exposed to lead above the AL for more than 30 days in a consecutive 12-month period (not necessarily a calendar year). The employer must make a medical examination available to these employees when they notify the employer that they have health signs or symptoms commonly associated with lead, want medical advice on lead and reproduction, or have difficulty breathing with a respirator, or when they are medically removed from or limited in work. This medical examination must include pregnancy testing or laboratory evaluation of male fertility upon employee request.

(b) For the construction standard, initial blood sampling and analysis (biological monitoring) is required for employees performing identified tasks or exposed to lead at or above the AL on any day. The employer must also make a medical examination available to an employee who is or who may be exposed to lead above the AL for more than 30 days in a consecutive 12-month period, and who notifies the employer that she is pregnant.

(c) For the general industry standard, an initial examination is required before workers are assigned to a job involving exposure to lead above the AL.

(6) Training –

(a) Both standards specify basic initial training for employees exposed to lead at any level. Comprehensive training is required initially and annually thereafter for workers exposed at or above the AL.

(b) In addition, the construction standard requires expanded training for all employees performing identified tasks until air sampling shows the actual exposure.

1-3. HUD- Guidelines for Hazard Identification and Abatement

a. This document, Guidelines for the Evaluation and Control of Lead-Based Paint Hazards in Housing, provides detailed, comprehensive, and technical information on how to identify lead-based paint hazards in housing and how to control such hazards safely and efficiently. The guidelines are being issued pursuant to Section 1017 of Title X for the conduct of Federally supported work involving risk assessments, inspections, interim controls, and abatement of lead-based paint hazards. These guidelines are not regulations. For purposes of this Manual, the Guidelines may be useful for anyone who is interested in further information on lead hazards posed by paint, dust, and soil even though the housing or building may have no connection with the Federal government following clearance levels be met –

Location	Clearance Level
Uncarpeted Floors	40 ug/ft^2
Interior window sills	250 ug/ft^2

Window troughs	**400 ug/ft^2**

b. The 1990 HUD interim guidance document, while addressing lead in soil at Comprehensive Environmental Response Compensation and Liability Act (CERCLA) sites and Resource, Conservation, and Recovery Act (RCRA) facilities, recommends a threshold level of 400 ppm in bare soil for residential land use. This threshold applies in areas expected to be used by children, including residential backyards, day care and school yards, playgrounds, public parks, and any other areas where children gather.

1-4. EPA – Resource Conservation and Recovery Act (RCRA)

a. As of early 1995, lead abatement wastes may be either hazardous or non-hazardous under the RCRA. Nearly all states are authorized to implement and administer the basic RCRA hazardous waste program. Generators should always contact state authorities for specific guidance on what constitutes a hazardous waste and specific requirements for disposing of abatement waste.

b. In making the determination of what constitutes hazardous waste, generators must use their knowledge or waste analysis data to determine whether the waste they have generated exhibits the "Toxicity Characteristic." The toxicity is measured using the EPA's TCLP. For lead abatement wastes, the regulatory threshold of most concern is for lead; TCLP levels at or above 5 ppm lead define the waste as hazardous.

(1) Exemptions –

(a) Household Wastes that are generated as part of "interim controls" or as operation and maintenance for lead paint may be exempt from hazardous waste regulations under the exclusion for household waste. The household waste exemption is relatively narrow (and applies to wastes from "routine maintenance"), and is not generally applicable to the renovation and demolition activities common in lead abatement. Generators should contact state RCRA authorities to determine the limitations of this exclusion.

(b) Small Quantity Wastes. If less than 100 kg/month (about 220 lbs.) of hazardous waste is produced, generators qualify as "conditionally exempt small quantity generators." The waste may then be handled as non-hazardous. Certain limitations apply and some states do not have this exemption.

(2) Abatement Waste Categories –

(a) The EPA encourages generators to segregate abatement wastes in order to minimize the volume of hazardous waste and reduce the testing needed. While the kinds of wastes generated will depend on abatement methods used, most wastes can be separated into one of several categories –

(b) Low-Lead Waste - These wastes include filtered wash water, disposable clothing after vacuuming, and cleaned plastic sheeting. These wastes typically pass the TCLP test and are not hazardous.

(c) Architectural Components - This category includes painted building components, such as doors, trim, windows, baseboards, soffits, railings, molding, radiators, and stone or brick. Current regulations require the generator to use testing results or "knowledge" of their waste to identify hazardous waste.

(d) Various site-specific factors may affect whether the waste would be hazardous (age of building, thickness of paint, sampling protocol). Therefore, generators should contact state authorities for information on lead abatement wastes in their area, and whether architectural components are usually considered non-hazardous waste.

(e) Concentrated Lead Waste - These wastes include lead paint chips and dust; sludge from paint stripping; un-cleaned rags, mops, and scrapers; and HEPA vacuum filters. These wastes typically fail the TCLP test and should be handled as hazardous (unless conditionally exempt as small quantity generator).

(3) Other Wastes –

(a) Other wastes usually should be tested to determine if they are hazardous, and managed appropriately. The most important waste in this category is contaminated soil. While TCLP results for soils are difficult to predict, anecdotal experience suggests that soil lead that exceeds 5,000 ppm will likely fail the TCLP test. Excavated soil that fails the test should be handled as hazardous.

(b) The EPA is currently working on a comprehensive approach to deal with contaminated media. The EPA has recommended actions for various soil levels, which are dependent upon factors such as accessibility to children.

1-5. EPA – Residential LBP Hazard Reduction Act (Title X)

Title X was conceived as a transitional bill, not the final solution to LBP hazards in housing. It recognizes the scope of lead poisoning hazards in the US housing stock and the reality that, in most cases, prevention efforts have been ineffective over the past several decades. Title X's central purpose is to mobilize national resources to support expanded prevention efforts on a broad scale. This goal is advanced by several strategies:

a. Developing a new framework for lead hazard reduction to focus resources for maximum health benefit and to trigger a range of actions appropriate to various hazard and housing situations,

b. Imposing specific requirements and deadlines on Federally owned, insured and assisted housing to make the Federal government a responsible landlord, encourage the growth and development of a quality abatement industry, and begin to clarify confusion over standards of care in private rental housing,

c. Providing long overdue Federal leadership: Increased resources for abatement, specific timetables for action, and clear standards for licensing contractors, protecting workers, certifying laboratories, and accrediting training programs, and

d. Creating new mechanisms for raising public awareness and engaging market forces to catalyze action in private housing.

1-6. EPA/HUD – Section 1018 - Residential Lead-based Paint Hazard Reduction Act

a. As a result of past Federal State, and Local efforts to reduce lead in the environment the percentage of children with elevated levels of lead in their blood has declined considerably over the last 20 years. Approximately 1.7 million children, however, still have blood-lead levels high enough to raise concerns. Studies suggest that lead exposure from deteriorated residential LBP, contaminated soil, and lead in dust are among the major existing sources of lead exposure among

children in the United States. Section 1018 of the Residential Lead-Based Paint Hazard Reduction Act of 1992 directed the EPA and HUD to jointly issue regulations requiring disclosure of known LBP and/or LBP hazards by selling or leasing housing constructed before the phase out of residential LBP use in 1978. Under that authority EPA and HUD are establishing the following requirements:

(1) Sellers and lessors of most residential housing built before 1978 must disclose the presence of know LBP or LBP hazards in the housing;

(2) Must provide purchasers and lessees with any available records or reports pertaining to the presence of LBP or LBP hazards;

(3) Must provide purchasers and lessees with a Federally approved lead hazard information pamphlet;

(4) Must provide purchasers with a 10-day opportunity to conduct a risk assessment or inspection for the presence of LBP or LBP hazards;

(5) Sales and leasing contracts must contain certain disclosure and acknowledgment language; and

(6) Agents must comply with these requirements.

b. These provisions ensure that families receive both specific information on the housing's lead history and general information on lead exposure prevention.

2. State Regulations

2-1. COMAR 26.02.07 – Procedures for Abatement

a. These regulations establish appropriate techniques for abatement of lead-containing substances from interior and certain exterior areas in group day care centers, in all residential property including owner-occupied residential property, and in buildings appurtenant to group day care centers and residential properties.

b. A person performing abatement of lead-containing substances may not use the following methods –

(1) Open flame burning.

(2) Dry sanding.

(3) Open abrasive blasting.

(4) Uncontained hydro-blasting.

(5) Methylene chloride for interior use except that methylene chloride may be used in interior work areas for localized touch-up.

(6) Dry scraping.

2-2. COMAR 26.16.01 – Accreditation and Training

a. COMAR 26.16.01 establishes –

(1) Requirements and standards for the accreditation of contractors, supervisors, inspectors, and trainers providing lead paint abatement services for residential, public, or commercial buildings, bridges, or other structures or superstructures;

(2) Job performance standards for contractors, supervisors, and other persons disturbing a lead-containing substance in residential, public, and commercial buildings; and

(3) Training requirements for workers and project designers who perform lead paint abatement services.

b. Determination of lead content in paint shall be based on –

(1)Use of an XRF by an accredited person;

(2) Analysis by a qualified laboratory of paint samples from surfaces to be disturbed during the project;

(3) A specific knowledge of the painting history of the structure; or

(4) Other procedures approved on a case-by-case basis by the Department.

3. Army Regulations

3-1. Army Regulation 420-70 (Chapter 3, Section II)

a. The purpose of lead hazard management is to prevent lead exposure to children under the age of six years, pregnant women, and workers. Lead hazard management includes identification of lead hazards in child-occupied facilities by performance of risk assessments, control or elimination of lead hazards through interim control or abatement, and on-going monitoring of painted surfaces known or suspected to contain lead. Paint inspections to determine the presence and location of LBP will be performed only when required by Federal or State statute .

b. Where not otherwise specifically required by Federal, State, or Local laws, the Army, recognizing that lead-based paint is not the only source of lead exposure, uses the more inclusive terms "lead contaminated paint" "lead hazard management", and "lead hazard" instead of "lead-based paint" "lead-based paint management", and "lead-based paint hazard."

c. AR 420 –70 requires that installations, activities, tenants, and Civil Works Facilities (CFW) will –

(1) Families will receive specific information on the lead history of assigned family housing and general information on lead exposure prevention, as required by 24 CFR, Subtitle A, Part 35, Subpart H, which implements Section 1018 of Title X (Public Law 102–550).

(2) The Department of Housing and Urban Development has developed guidelines for the evaluation and control of LBP hazards. These "Guidelines for the Evaluation and Control of Lead- Based Paint Hazards in Housing" will be followed as a standard of care for assessment, management, and abatement of lead hazards. Guidelines may be ordered from the Director, Office of Lead Hazard Control, HUD, Room B-133, 451 Seventh Street SW, Washington, D.C. 20410.

(3) Paint in pre-1978 child-occupied facilities is assumed to be lead-contaminated, unless testing determines otherwise. Risk assessments to identify lead hazards will be performed for facilities which contain lead-contaminated paint. Lead hazards will be managed by interim controls.

(4) Lead-contaminated paint will be abated only when interim controls are ineffective or when economically justified for major repair or whole neighborhood revitalization projects. Such paint will not be removed solely for the purpose of abatement.

(5) Lead-contaminated bare soil will be managed by interim controls unless economic, operational, or regulatory requirements dictate removal and disposal.

(6) The US Army Corps of Engineers Guide Specification CEGS- 02090 and Civil Works Guide Specification CECW-09940 will be used in the preparation of lead abatement specifications for buildings and steel structures.

4. Army Guidelines

4-1. Department of the Army Pamphlet 200-1 (DA PAM 200-1), Environmental Protection and Enhancement

a. Army installations worldwide are required by AR 420-70 to provide and maintain a comprehensive Lead Hazard Management Program. The guidance in this regulation may be adapted for specific facilities and operations, as appropriate. A successful program entails participation from a variety of technical disciplines that include the Directorate of Installation Operations (DIO), Director of Logistics (Director of Supply) (DOL), and industrial hygiene/ safety, preventive medicine, legal, housing, public affairs, and environmental offices.

b. Additionally DA PAM 2001-1 establishes a LBP Management Program required to –

(1) Establishes procedures to manage and control lead hazards that follow applicable Federal, state, and Local regulations.

(2) Assumes painted surfaces in or on facilities constructed prior to 1978 contain LBP unless documented testing or historical data indicate that only non-LBP was used.22 DA PAM 200–1 • 17 January 2002.

(3) Ensures contracts for projects involving the removal and disposal of lead-contaminated material at military installations are reviewed and approved by the environmental coordinator (EC) and comply with RCRA household hazardous waste requirements. Contracts must require

compliance with all applicable environmental regulations under the Toxic Substances Control Act (TSCA), Title IV, and state or Local LBP regulations, including all applicable disclosure requirements during transfer or lease of residential property or notification prior to remodeling or renovation of target housing.

(4) Complies with Title X of Public Law (PL) 102-550.

c. Additional guidance on lead exposure reduction may be obtained from the Army lead and asbestos Web site (http://www.hqda.army.mil/acsimweb/fd/LeadAsbestos/pages/home.htm).

Appendix B

Appendix B

Glossary of Terms

Abatement means any set of measures designed to permanently eliminate lead-based paint or lead-based paint hazards (see definition of ''permanent''). Abatement includes: (1) The removal of lead-based paint and dust-lead hazards, the permanent enclosure or encapsulation of lead-based paint, the replacement of components or fixtures painted with lead-based paint, and the removal or permanent covering of soil-lead hazards; and (2) All preparation, cleanup, disposal, and post abatement clearance testing activities associated with such measures. *Act* means the Lead-Based Paint Poisoning Prevention Act, as amended, 42 USC. 4822 *et seq.*

Bare soil means soil or sand not covered by grass, sod, other live ground covers, wood chips, gravel, artificial turf, or similar covering.

Certified means licensed or certified to perform such activities as risk assessment, lead-based paint inspection, or abatement supervision, either by a State or Indian tribe with a lead-based paint certification program authorized by the Environmental Protection Agency (EPA), or by the EPA, in accordance with 40 CFR part 745, subparts L or Q.

Clearance examination means an activity conducted following lead-based paint hazard reduction activities to determine that the hazard reduction activities are complete and that no soil lead hazards or settled dust-lead hazards, as defined in this part, exist in the dwelling unit or worksite. The clearance process includes a visual assessment and collection and analysis of environmental samples. Dust-lead standards for clearance are found at § 35.1320.

Common area means a portion of a residential property that is available for use by occupants of more than one dwelling unit. Such an area may include, but is not limited to, hallways, stairways, laundry and recreational rooms, playgrounds, community centers, on-site day care facilities, garages and boundary fences.

Component means an architectural element of a dwelling unit or common area identified by type and location, such as a bedroom wall, an exterior window sill, a baseboard in a living room, a kitchen floor, an interior window sill in a bathroom, a porch floor, stair treads in a common stairwell, or an exterior wall.

Composite sample means a collection of more than one sample of the same medium (e.g., dust, soil or paint) from the same type of surface (e.g., floor, interior window sill, or window trough), such that multiple samples can be analyzed as a single sample.

Containment means the physical measures taken to ensure that dust and debris created or released during lead-based paint hazard reduction are not spread, blown or tracked from inside to outside of the worksite.

Deteriorated paint means any interior or exterior paint or other coating that is peeling, chipping, chalking or cracking, or any paint or coating located on an interior or exterior surface or fixture that is otherwise damaged or separated from the substrate.

Dry sanding means sanding without moisture and includes both hand and machine sanding.

Dust-lead hazard means surface dust that contains a dust-lead loading (area concentration of lead) at or exceeding the levels promulgated by the EPA pursuant to section 403 of the Toxic Substances Control Act or, if such levels are not in effect, the standards in § 35.1320.

Dwelling unit means a: (1) Single-family dwelling, including attached structures such as porches and stoops; or (2) Housing unit in a structure that contains more than 1 separate housing unit, and in which each such unit is used or occupied, or intended to be used or occupied, in whole or in part, as the home or separate living quarters of 1 or more persons.

Encapsulation means the application of a covering or coating that acts as a barrier between the lead-based paint and the environment and that relies for its durability on adhesion between the encapsulant and the painted surface, and on the integrity of the existing bonds between paint layers and between the paint and the substrate. Encapsulation may be used as a method of abatement if it is designed and performed so as to be permanent (see definition of ''permanent'').

Enclosure means the use of rigid, durable construction materials that are mechanically fastened to the substrate in order to act as a barrier between lead-based paint and the environment. Enclosure may be used as a method of abatement if it is designed to be permanent (see definition of ''permanent'').

Environmental intervention blood lead level means a confirmed concentration of lead in whole blood equal to or greater than 20 μg/dL (micrograms of lead per deciliter) for a single test or 15–19 μg/dL in two tests taken at least 3 months apart.

Evaluation means a risk assessment, a lead hazard screen, a lead-based paint inspection, paint testing, or a combination of these to determine the presence of lead-based paint hazards or lead-based paint.

Expected to reside means there is actual knowledge that a child will reside in a dwelling unit reserved for the elderly or designated exclusively for persons with disabilities. If a resident woman is known to be pregnant, there is actual knowledge that a child will reside in the dwelling unit.

Federal agency means the United States or any executive department, independent establishment, administrative agency and instrumentality of the United States, including a corporation in which all or a substantial amount of the stock is beneficially owned by the United States or by any of these entities. The term ''Federal agency'' includes, but is not

limited to, Rural Housing Service (formerly Rural Housing and Community Development Service that was formerly Farmer's Home Administration), Resolution Trust Corporation, General Services Administration, Department of Defense, Department of Veterans Affairs, Department of the Interior, and Department of Transportation.

Federally owned property means residential property owned or managed by a Federal agency, or for which a Federal agency is a trustee or conservator.

Friction surface means an interior or exterior surface that is subject to abrasion or friction, including, but not limited to, certain window, floor, and stair surfaces. *g* means gram, *mg* means milligram (thousandth of a gram), and µg means microgram (millionth of a gram).

Hazard reduction means measures designed to reduce or eliminate human exposure to lead-based paint hazards through methods including interim controls or abatement or a combination of the two.

HEPA vacuum means a vacuum cleaner device with an included high-efficiency particulate air (HEPA) filter through which the contaminated air flows, operated in accordance with the instructions of its manufacturer. A HEPA filter is one that captures at least 99.97 percent of airborne particles of at least 0.3 micrometers in diameter.

HUD means the United States Department of Housing and Urban Development.

Impact surface means an interior or exterior surface that is subject to damage by repeated sudden force, such as certain parts of door frames.

Interim controls means a set of measures designed to reduce temporarily human exposure or likely exposure to lead-based paint hazards. Interim controls include, but are not limited to, repairs, painting, temporary containment, specialized cleaning, clearance, ongoing lead-based paint maintenance activities, and the establishment and operation of management and resident education programs.

Interior window sill means the portion of the horizontal window ledge that protrudes into the interior of the room, adjacent to the window sash when the window is closed. The interior window sill is sometimes referred to as the window stool.

Lead-based paint means paint or other surface coatings that contain lead equal to or exceeding 1.0 milligram per square centimeter or 0.5 percent by weight or 5,000 parts per million (ppm) by weight.

Lead-based paint hazard means any condition that causes exposure to lead from dust-lead hazards, soil-lead hazards, or lead-based paint that is deteriorated or present in chewable surfaces, friction surfaces, or impact surfaces, and that would result in adverse human health effects.

Lead-based paint inspection means a surface-by-surface investigation to determine the presence of lead-based paint and the provision of a report explaining the results of the investigation.

Lead hazard screen means a limited risk assessment activity that involves paint testing and dust sampling and analysis as described in 40 CFR 745.227(c) and soil sampling and analysis as described in 40 CFR 745.227(d).

Occupant means a person who inhabits a dwelling unit.

Paint stabilization means repairing any physical defect in the substrate of a painted surface that is causing paint deterioration, removing loose paint and other material from the surface to be treated, and applying a new protective coating or paint.

Paint testing means the process of determining, by a certified lead-based paint inspector or risk assessor, the presence or the absence of lead-based paint on deteriorated paint surfaces or painted surfaces to be disturbed or replaced.

Paint removal means a method of abatement that permanently eliminates lead-based paint from surfaces.

Painted surface to be disturbed means a paint surface that is to be scraped, sanded, cut, penetrated or otherwise affected by rehabilitation work in a manner that could potentially create a lead-based paint hazard by generating dust, fumes, or paint chips.

Permanent means an expected design life of at least 20 years.

Play area means an area of frequent soil contact by children of less than 6 years of age, as indicated by the presence of play equipment (e.g. sandboxes, swing sets, sliding boards, etc.) or toys or other children's possessions, observations of play patterns, or information provided by parents, residents or property owners.

Reevaluation means a visual assessment of painted surfaces and limited dust and soil sampling conducted periodically following lead-based paint hazard reduction where lead-based paint is still present.

Rehabilitation means the improvement of an existing structure through alterations, incidental additions or enhancements. Rehabilitation includes repairs necessary to correct the results of deferred maintenance, the replacement of principal fixtures and components, improvements to increase the efficient use of energy, and installation of security devices.

Replacement means a strategy of abatement that entails the removal of building components that have surfaces coated with lead-based paint and the installation of new components free of lead-based paint.

Residential property means a dwelling unit, common areas, building exterior surfaces, and any surrounding land, including outbuildings, fences and play equipment affixed to the land, belonging to an owner and available for use by residents, but not including land used for agricultural, commercial, industrial or other non-residential purposes, and not including paint on the pavement of parking lots, garages, or roadways.

Risk assessment means: (1) An on-site investigation to determine the existence, nature, severity, and location of lead-based paint hazards; and (2) The provision of a report by the individual or firm conducting the risk assessment explaining the results of the investigation and options for reducing lead-based paint hazards.

Single room occupancy (SRO) *housing* means housing consisting of zero-bedroom dwelling units that may contain food preparation or sanitary facilities or both (see Zero-bedroom dwelling).

Soil-lead hazard means bare soil on residential property that contains lead equal to or exceeding levels promulgated by the US Environmental Protection Agency pursuant to section 403 of the Toxic Substances Control Act or, if such levels are not in effect, the following levels: 400 μg/g in play areas; and 2000 μg/g in other areas with bare soil that total more than 9 square feet (0.8 square meters) per residential property. *Sponsor* means mortgagor (borrower).

Standard treatments means a series of hazard reduction measures designed to reduce all lead-based paint hazards in a dwelling unit without the benefit of a risk assessment or other evaluation.

Substrate means the material directly beneath the painted surface out of which the components are constructed, including wood, drywall, plaster, concrete, brick or metal.

Target housing means any housing constructed prior to 1978, except housing for the elderly or persons with disabilities (unless a child of less than 6 years of age resides or is expected to reside in such housing for the elderly or persons with disabilities) or any zero-bedroom dwelling. In the case of jurisdictions which banned the sale or use of lead-based paint prior to 1978, HUD may designate an earlier date.

Tenant means the individual named as the lessee in a lease, rental agreement or occupancy agreement for a dwelling unit.

Visual assessment means looking for, as applicable: (1) Deteriorated paint; (2) Visible surface dust, debris and residue as part of a risk assessment or clearance examination; or (3) The completion or failure of a hazard reduction measure.

Wet sanding **or** ***wet scraping*** means a process of removing loose paint in which the painted surface to be sanded or scraped is kept wet to minimize the dispersal of paint chips and airborne dust.

Window trough means the area between the interior window sill (stool) and the storm window frame. If there is no storm window, the window trough is the area that receives both the upper and lower window sashes when they are both lowered.

Worksite means an interior or exterior area where lead-based paint hazard reduction activity takes place. There may be more than one worksite in a dwelling unit or at a residential property.

Zero-bedroom dwelling means any residential dwelling in which the living areas are not separated from the sleeping area. The term includes efficiencies, studio apartments, dormitory or single room occupancy housing, military barracks, and rentals of individual rooms in residential dwellings (see Single room occupancy (SRO)).